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दाबकृत सिंचाई उपस्कर – पारिभाषिक शब्दावली

Indian Standard

PRESSURIZED IRRIGATION EQUIPMENT — TERMINOLOGY

UDC 631·347 : 001·4

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
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Irrigation Equipment and Systems Sectional Committee, FAD 35

FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards, after the draft finalized by the Irrigation Equipment and Systems Sectional Committee had been approved by the Food and Agriculture Division Council.

Pressurized irrigation equipments are becoming very popular now-a-days in the field of agriculture. In order to familiarize with the terminology being used in this field a need was felt to prepare a standard on terminology. The terms have been arranged in alphabetical order.

In the preparation of this standard assistance has been derived from DOC : ISO/TC 23/SC 18 N 264 'Definitions of pressurized irrigation equipments', issued by International Organization for Standardization (ISO).

Indian Standard

PRESSURIZED IRRIGATION EQUIPMENT — TERMINOLOGY

1 SCOPE

1.1 This standard covers the definition for various terms related to pressurized irrigation equipment.

2 TERMINOLOGY

2.1 Accuracy Level

The deviation of the outlet pressure from the pressure setting or setting declared by the manufacturer.

2.2 Activating Chamber

Space in the operating mechanism on one or both sides of the piston or diaphragm in which the water pressure is applied to open or close the valve.

2.3 Activating Valve

A manually operated valve or a hydraulically operated valve or a volumetric valve or other type of valve which is used to open and shut off a flow of water through the control head.

2.4 Adjustable Pressure Regulator

Pressure regulator in which the pressure setting can be adjusted externally without requiring replacement of parts in the regulation assembly.

2.5 Adjustable Stop

Device used to adjust the movement range of the operating mechanism up to full opening or closing of the valve.

2.6 Air Release and/or Vacuum Relief Valve

A valve which opens automatically to allow air from the atmosphere to enter the water pipeline during drainage of the line and/or venting of air from the water pipeline to the atmosphere during filling or during normal operation of the pipeline under pressure.

2.7 Alclad Tube (Cladded Tube)

A tube having on both inside and outside surfaces a metallurgically bonded aluminium or aluminium alloy coating that is anodic to the core material and therefore protects the core from corrosion.

2.8 Ambient Temperature

Temperature of the surroundings in the range of 25 ± 5°C.

2.9 Angle Pattern Check Valve

A check valve for installation at a junction between vertical and horizontal positions, in which the axes of the inlet and outlet are at right angles to each other.

2.10 Angle Valve

A valve having generally a cylindrical body in which the body ends are at right angles to each other and in which the axis of the stem is in line with that of one body end.

2.11 Aperture Size

Dimension expressed in microns, of the aperture in the filter element, such as the diameter of a round opening or the side of a square opening.

2.12 Automatic Self-Cleaning Strainer Filter

A filter having automatic flushing capability as determined by pressure differential, duration of filteration, volume of water filtered, or by some other physical quantity or by any combination of these.

2.13 Auxiliary Conductors

Those conductors used to carry current devices that are not required for movement of the machine.

2.14 Auxiliary Panels

Enclosed assemblies of auxiliary control devices for the machine, such as motor controllers, relays, switches, and transformers, but not including the main controller or main start and stop function switches. A junction box is not an auxiliary panel.

2.15 Average Outside Diameter of Aluminium Tube

The arithmetic mean of two perpendicularly outside diameters, measured at one cross-section.

2.16 Average Wall Thickness of Aluminium Tube

The arithmetic mean of eight measurements of wall thickness, equally spaced around the circumference of one cross-section, but not on the weld line in the case of welded tubes.

2.17 Backflow Preventer

A mechanical assembly designed to prevent unintended backflow of water into a non-irrigation section of the water supply system in order to protect against entry of materials which may constitute a health hazard.

2.18 Ball Valve

A valve in which a ball can be turned to move its port or ports relative to the body seat ports to control the flow of fluid.

2.19 Bench Pressure Loss

Pressure loss in the testing system between the pressure taps with the tested specimen included.

2.20 Body Dividing Wall

The integral part of the body which separates the inlet and outlet ports and on which the valve seat is formed.

2.21 Bonded

A reliable connection to ensure the required electrical conductivity between metal parts required to be electrically connected.

2.22 Centre Pivot

An automated irrigation machine consisting of a pipeline rotating around a pivot point and supported by a number of self-propelled towers. The water is supplied at the pivot point and flows outwards through the pipeline and is distributed by sprayer or sprinkler nozzles located along the pipeline.

2.23 Check Mechanism

The part or assembly of moving parts which closes the water passage when flow ceases or by back-pressure.

2.24 Check Valve

A valve which permits flow in one direction only and prevents reversal of flow by means of an automatic check mechanism. The valve opens by the flow of liquid and closes by the weight of the check mechanism or by mechanical pressure (e. g. spring) when the flow ceases.

2.25 Clamping Band

Ring or band-like device used for tightening the joint between emitting pipe and fitting.

2.26 Clean Pressure Drop

The pressure drop in a clean strainer measured with a flow of clean water under normal conditions.

2.27 Clogged Filter Element

A filter element which has collected a quantity of solid contaminants such that it cannot maintain the highest flow rate recommended by the manufacturer without exceeding the safe maximum pressure drop.

2.28 Closing Disk

A part of the obturator, irrespective of its shape, on which the disk face is formed and to which the disk facing ring, if used, is secured.

2.29 Closing Torque

The smallest torque required to achieve full tightness of the valve at nominal pressure.

2.30 Comprehensive Regulation Range

All the possible regulated pressures or regulation ranges that can be obtained with a pressure regulator by the addition, reduction or replacement of regulating components (springs, disks, etc).

2.31 Coefficient of Distribution Uniformity, CDU

The uniformity of water application rate at a given pressure and spacing, expressed as a percentage, by the Christiansen method.

2.32 Collector

Receptacle used for collecting the water discharged by the sprinkler or by the sprayer during the test of distribution uniformity or of spray distribution.

2.33 Collector Ring

An assembly of slip rings for transferring electrical energy from a stationary to a rotating member.

2.34 Control Conductor

A conductor that carries current to control devices necessary for movement of the machine.

2.35 Control Tubing

Small diameter tubing that transmits a command hydraulically by line pressure to and from the pressure chamber of the hydraulic valve.

2.36 Control Valve

Auxiliary valve operated mechanically, electrically, hydraulically, or pneumatically and used to activate the hydraulically operated valve.

2.37 Critical Pressure Drop Before Failure

The maximum allowable pressure difference across each filtering element of the strainer which will not cause failure of the filter element.

2.38 Declared Preset Pressure

The preset water pressure at the outlet of the pressure regulator as preset and declared by the manufacturer using a reference velocity of 1 m/s.

2.39 Denting Factor

A parameter computed as the product of the minimum tensile yield strength in MPa and the square of the wall thickness of the tube, in mm for evaluating the ability of an aluminium tube to withstand external mechanical loading without permanent local deformation.

2.40 Diameter of Coverage

The diameter of the area wetted by the sprinkler.

2.41 Diaphragm Valve

A valve in which a flexible diaphragm constitutes the closing and regulating mechanism to control the flow of fluid through the valve.

2.42 Disk Face

A smooth face of the obturator which makes contact with the body seat when the valve is closed.

2.43 Disk Facing Ring

A ring or round plate of different material from the closing disk secured to the disk and used to ensure water tightness when the valve is closed.

2.44 Distribution Curve

Average curve of heights of water accumulated in collectors laid out along the spray radius, as a function of the distances of the collectors from the sprayers.

2.45 Drain or Flush Valve

A valve normally installed at the bottom of the strainer and intended for draining or flushing the strainer housing.

2.46 Dual Single-Function Air Release and/or Vacuum Relief Valve

A valve consisting of two valves: a high pressure air release valve and a low pressure air release valve. The valve operates separately in accordance with their function and fulfill three functions:

- Release of air from the pipe system at working pressure;
- Injection of air at a high flow rate during drainage of water from the pipe system;
- Release of air at a high flow rate when the pipe system is being filled with water.

2.47 Duration of Automatic Flushing Cycle of a Filter

The period of time during which water and dirt are flushed out of the filter via the flush valve during each automatic flushing cycle.

2.48 Earthed

Connected to earth or some conducting body which serves in place of earth.

2.49 Earthed Conductor

A circuit conductor which is intentionally earthed.

2.50 Earthing Conductor

The conductor used to connect non-current carrying metal parts of a machine to a service earthed conductor and/or an earthing electrode conductor.

2.51 Effective Diameter of Coverage

Twice the distance of the sprayer from the sprayer from the farthest collector that collected at least 10 percent of the average quantity of water collected in the collectors during time the sprayer operates at nominal working pressure.

2.52 Effective Length of a Lateral Move Machine

The dimension parallel to the pipe line of the area to be irrigated, which is conventionally calculated as the distance between the two most distance sprayer or sprinkler nozzles on the pipeline plus 75 percent of the wetted radius of each end sprayer or sprinkler.

If a portion of the area under the pipeline is used for the water supply system and not for crop production, that distance should not be included in the definition of the effective length. In this case, the effective length is the distance between the two most distant sprayer or sprinkler nozzles, plus 75 percent of the wetted radius of each nozzle, minus the distance used for the water supply system.

If the alternative definition for effective length is used, it shall be clearly stated in the test results.

2.53 Effective Radius of a Centre Pivot Machine

The radius of the circular field area to be irrigated, which is conventionally calculated as the distance from the pivot point to the terminal sprinkler on the pipeline plus 75 percent of the wetted radius of the terminal sprayer or sprinkler. If an alternation for effective radius used, it shall be clearly stated in the test results.

2.54 Elongation

Increase in the hose length caused by pressurization.

2.55 Emitter

Device fitted to an irrigation lateral and intended to emit water in the form of drops or continuous flow at emitter rates not exceeding 15 l/h except during flushing.

2.56 Emitter Inlet

Point at which water enters the emitter.

2.57 Emitter Outlet

Opening or group of openings in an emitter from which water is emitted and directed to one clearly distinguishable location.

2.58 Emitter Pipe

Continuous pipe, hose or tubing with perforation or other hydraulic devices formed in the pipe during production and intended to emit water in the form of drops or continuous flow, at emission rates not exceeding 15 l/h.

2.59 Emitter Unit

Section of the emitted-pipe repeated at intervals, from which water is emitted to one clearly distinguishable location.

2.60 End Gun

A set of one or more sprayer or sprinkler nozzles installed on the distal end(s) of a centre pivot or a lateral move machine to increase the irrigated area. The end gun(s) usually operate(s) for only a portion of the time to conform to system boundaries.

2.61 Equivalent Nozzle Diameter

The theoretical nozzle outlet diameter computed on the basis of rate of flow (neglecting shape of nozzle outlet).

2.62 Fertilizer Tank

A pressurized container connected to the irrigation system, in parallel or in line, and which is used to inject a fertilizer solution into the system as a result of activation of a pressure drop in the pipe to which it is connected.

2.63 Fertilizer Unit

A fertilizer pump (electrical, hydraulic or other), or a fertilizer tank which is used to inject fertilizer solutions into the irrigation system.

2.64 Filter Element

A strainer component consisting of a perforated plate, screen, mesh, discs, or a combination of these, intended to retain solid contaminants larger than a given size from the water flowing through the component.

2.65 Fitting

Any connecting device suitable for attachment to the emitting pipe with or without a clamping band.

2.66 Fixed Setting Pressure Regulator

Pressure regulator with fixed pressure setting which cannot be varied.

2.67 Float (Float Assembly)

A component within the valve body whose specific weight is less than that of water and which is intended to float upon the water which fills the cavity of the valve body. When the flaot seals at the relief nozzle (either directly or by means of a part of the float assembly), the force acting on the float (or the elevating force), as well as other forces which develop within the valve, seal the relief nozzle and prevent water from flowing out of the air valve.

2.68 Flow Rate

The volume of water flowing through the valve per unit of time.

2.69 Flushing Control Mechanism

A mechanism which controls the flushing action of the filter as determined by one of a combination of physical quantities such as pressure differential, duration of filtration, volume of water filtered, etc.

2.70 Flushing Emitter

Emitter capable of flushing unfiltered particles from the body of the emitter without clogging it.

2.71 Flushing Pressure Differential

The pressure differential between two points, one upstream and one downstream of the filter element which initiates the flushing cycle.

2.72 Flushing Valve

A valve through which flushing water is discharged from the filter.

2.73 Front-Mounted

Mounting of replaceable devices so that they may be individually replaced from the front of an enclosure without removing sub-panels or numerous other devices, to gain access to hidden nuts, or to remove a rear enclosure cover.

2.74 Front-Wired

Mounting of replaceable devices so that they may be individually wired from the front of an enclosure without removing the device, sub-panels, or rear enclosure covers to gain access to electrical connections.

2.75 Full Opening

Position reached by the operating mechanism when the valve is either fully open or when the operating mechanism reaches the adjustable stop.

2.76 Globe Valve

A valve having generally a spherical body in which the body ends are in line with each other and in which the axis of the stem is at right angles to that of the body ends.

2.77 Heavy Duty Aluminium Tubing (Type B Tubing)

To be defined later.

2.78 Height of Sprayer Spray

Maximum height of the spray above the sprayer nozzle when operating at nominal working pressure.

2.79 High Pressure or Continuous Acting Air Release Valve

An air release valve with a small diameter release nozzle which serves to vent the air trapped in the pipeline in proximity to the air valve when the water pipeline is under normal operating conditions (a prevailing hydraulic pressure within the normal pressure working range of the water pipeline), and which allows entry of air into the pipeline at a low pressure or a pressure equal to atmosphric pressure.

2.80 Horizontal Pattern Check Valve

A check valve for installation in a horizontal position, in which the axes of the inlet and outlet are in line with each other.

2.81 Hose

Flexible reinforced tube for conveying water, roughly round in cross-section when filled with water under normal operation pressure, that may be collapsible when empty of water.

2.82 Hydraulically Activated and Controlled Check Valve

To be defined later.

2.83 Hydraulically Operated Valve

Valve operated by means of water pressure.

2.84 Hydraulic Valve

Valve that performs the opening and closing operation of an irrigation system by applying or releasing the existing water pressure in the system.

2.85 Inlet Connection

A threaded or flanged part at the inlet to the air release valve or part of the body itself (in the bottom part of the valve) which connects the air valve to the pipe system.

2.86 Initial Regulation Pressure

The lowest pressure at the pressure regulator inlet, at which the regulated water pressure within the accuracy permissible by (this) the standard is attained.

2.87 In-Line Emitter

Emitter intended for installation between two lengths of pipe (irrigation lateral).

2.88 Inlet Fitting

Fitting having one end suitable for connection to a standard irrigation pipe or appliance and the other end or ends suitable for connection to an emitting pipe.

2.89 In-Line Fitting

Fitting with both ends suitable for connection to an emitting pipe.

2.90 Insert-Type Fitting

Fitting which grips the pipe only around its inner surface and which also increases the diameter of the pipe.

2.91 Integral Pressure Regulator

Pressure regulator which is an integral part of the irrigation device or is fitted specifically to the particular irrigation device.

2.92 Irrigation Control Head

An assembly of components and pipes which is installed at the head of the irrigation plot and which serves to control the functioning of the irrigation system from the aspect of opening and shutting off of the water, pressure regulation, water metering, filtration, etc.

2.93 Irrigation Lateral

A branch supply line on which water distribution devices (sprinklers, emitters, drippers) are mounted directly by means of fittings, risers or tubes.

2.94 Irrigation Interval

Time interval between the start of one irrigation application and the start of the following irrigation application in the same area.

2.95 Irrigation Machine (Hereinafter the 'Machine')

An electrically driven or controlled machine, not portable by hand, used primarily to transport and distribute water for agriculural purposes.

2.96 Irrigation Sprayer

Device connected to the irrigation system which sprays the water in the form of fine jets or in a fan shape (without rotational movement of the sprayer parts).

2.97 Irrigation System

The assembly of equipment (pipes, components devices) which are installed in the field and which are intended to irrigate a specific area.

2.98 Irrigation Water

Water of potable quality, or which may contain fertilizers and/or chemical materials of the type and concentration generally used in agricultural irrrigation. The temperature of the water shall not exceed 60°C.

2.99 Kinking

Vertical transverse folding from the normally round shape of a pressurized hose.

2.100 Lateral Move

An automated irrigation machine consisting of a pipeline supported by a number of self-propelled towers. The entire unit moves in such a way that the pipeline remains generally in a straight line. The water may be supplied to the machine at any point along the pipeline and is distributed by individual sprayer or sprinkler nozzles located along the pipeline.

2.101 Length of Strainer

Overall length between the extremities of the connecting threads of the strainer or the face-to-face distance between the connecting flanges.

2.102 Lift-Type Check Valve

A check valve in which the check mechanism incorporates a disk or piston or ball which lifts off the body seat.

2.103 Light Duty Aluminium Tubing (Type A Tubing)

To be defined later.

2.104 Low Nozzle Angle

A nozzle angle smaller than 20°.

2.105 Low Pressure 'Kinetic' Air Release Valve

An air release valve with a large diameter release nozzle which serves to vent air at high rates from the water pipeline during filling of the pipeline and which allows entry of air at high rates into the pipeline when draining.

2.106 Machine Isolator

An isolating means at the point of connection of electrical power to the machine.

2.107 Main Control Panel

An enclosure containing the main controller and other control device necessary for starting and stopping the machine.

2.108 Maximum Pressure

The highest pressure at the valve inlet at which the air valve is intended to open to release air from the pipeline or allow entry of air.

2.109 Maximum Activating Pressure

Maximum static water pressure in the activating chamber which is allowable to activate the operating mechanism.

2.110 Maximum Flow Rate

The highest flow rate at which the valve is required to operate for a limited period of time without deteriorating

2.111 Maximum Working Pressure

The highest working pressure declared by the manufacturer.

2.112 Mean Velocity of Flow

Flow rate of the water flowing through the valve divided by the internal cross-sectional area of a pipe with the same nominal size as the valve.

2.113 Metal-to-Metal

Attachment of metal parts to the machine with bolts and screws to provide an adequate contact for bonding purposes where all paint and dirt have been removed from under the bearing surface area of the bolt or screw heads.

2.114 Minimum Activating Pressure

Minimum static water pressure in the activating chamber which is required to activate the operating mechanism.

2.115 Minimum Flow Rate of Volumetric Valve

The lowest flow rate at which the valve is required to operate within the maximum error tolerance under normal service conditions.

2.116 Minimum Flow Rate of Pressure Regulator

The lowest flow rate at which the regulated water pressure is within the range of accuracy specified by the standard.

2.117 Minimum Pressure

The lowest pressure at the valve inlet at which complete sealing is achieved.

2.118 Minimum Working Pressure

The lowest upstream water pressure declared by the manufacturer which assures the proper functioning of the device (automatic self-cleaning strainer filter, valve, etc) without an additional high pressure source.

2.119 Moving Lateral

An automated irrigation machine consisting of a line of spray or sprinkler nozzles supported by a number of self-propelled towers. The entire unit moves in a generally straight or slighly curved path and irrigates a basically rectangular area, the water can be supplied to the machine at one of a variety of locations along the pipeline and is then distributed to the individually nozzled outlets. For the purpose of this standard the terms 'linear move' and moving lateral are synonymous.

2.120 Multiple Outlet Emitter

Emitter in which the output flow is divided and directed to several distinctly different locations.

2.121 Multiple Outlet Emitter

Emitter in which the output flow is divided and directed to several distinctly different locations.

2.122 Multiple Outlet Nominal Emission Rate

Emission rate of each outlet.

2.123 Multi-season Emitting Pipe

Emitting-pipe intended for multi-seasonal use, or for removal and reinstallation.

2.124 Multi-range Pressure Regulator

Pressure regulator with alternative pressure settings that may be changed by replacing regulating components (springs, disks, etc) but not by external adjustment.

2.125 Multiple Setting Fixed Pressure Regulator

Pressure regulator with pressure setting that can be varied by replacing regulation components (springs, disks, etc) but not by external adjustment.

2.126 Nominal Diameter of Irrigation Control Head

An agreed numerical designation identical to the nominal diameter of the pipe at the inlet or outlet (the smaller of these two diameters) of the irrigation control head.

2.127 Nominal Diameter of Aluminium Tube

A conventional numerical designation aproximately equal to the outside diameter.

2.128 Nominal Diameter of Emitting Pipe

Conventional numerical designation used to indicate the size of the emitting-pipe and approximately equal to the outside diameter, in millimetres, of the pipe.

2.129 Nominal Duration of Opening or Closing Time

The time required for full opening or closing of the valve when operated at the nominal pressure.

2.130 Nominal Emission Rate

see [Unregulated (non-compensating) Nominal emission rate and regulated (pressure compensating) nominal emission rate] **2.206** and **2.166**.

2.131 Nominal Rate of Flow

The quantity of water discharged by a sprinkler with a specific nozzle or by a sprayer per unit of time, at the nominal test pressure.

2.132 Nominal Pressure

Maximum static water pressure, at which the device (filter, valve, etc) or piping component is required to operate.

2.133 Nominal Pressure Rating

A numerical designation which is a convenient round number for reference purposes only. It is designated by the letters "PN" corresponding approximately to the highest working pressure in hundreds kPa at 20°C for which the valve is designated.

2.134 Nominal Size of Component

A conventional numerical designation used to indicate the size of an irrigation system component (valve, filter, etc). This designation represents the nominal diameter or thread size of the pipe which can be connected to the component without an intermediate fitting. A single number designation is adequate if the inlet and outlet ports are the same size.

2.135 Nominal Test Pressure of Sprinkler

The water pressure within the range of effective working pressure that is determined by the nozzle size and the nozzle angle, and used for testing the sprinkler.

2.136 Nominal Test Pressure of Emitter

Reference pressure of 100 kPa at the inlet of an unregulated emitter or emitting unit; or any other pressure so designated in manufacturer publications.

2.137 Normally Open (N. O.) Valve

Valve which remains open unless the minimum working pressure is applied to the operating mechanism.

2.138 Non-regulated Sprayer

A sprayer whose flow rate varies under conditions of fluctuating pressure at the sprayer inlet.

2.139 Normally Closed (N. C.) Valve

Valve which remains closed unless the minimum working pressure is applied to the operating mechanism.

2.140 Nozzle Angle

The angle of the water stream above a horizontal plane, as discharged from the sprinkler nozzle at the nominal test pressure.

2.141 Oblique Valve (Y-Globe Valve)

A valve in which the body ends are in line with each other, and in which the axis of the stem is oblique to that of the body ends.

2.142 Obturator

The moving member in a valve that operates to close the seat and, where applicable, contains a washer or similar sealing member.

2.143 One-Side Hydraulic Activation

Activating mechanism capable of using water pressure to apply force on the valve in one direction only, either to open or to close it.

2.144 One-Line Emitter

Emitter intended for direct or indirect (e. g. by means of tubing) installation in the wall of the irrigation lateral.

2.145 Opening Torque

The smallest torque which, when continuously applied to the stem, will fully open the valve from a fully closed position.

2.146 Operating Mechanism

Portion of the valve consisting of moving parts that open and close the water passage hydraulically.

2.147 Ordinary Pressure Regulator

A pressure regulator intended for installation upstream of an irrigation device and constituting an independent unit.

2.148 Part-Circle Sprinkler

A rotating sprinkler designed to irrigate a sector of a circular area either with or without the possibility of adjusting it to irrigate the entire circular area.

2.149 Piping Pressure Loss

The pressure loss in the upstream and downstream portions of the test system piping between the pressure taps, but excluding the tested specimen.

2.150 Pop-Up Sprinkler

An irrigation device in which a sprinkler is installed and which is designed for installation so that the upper part of the sprinkler is below ground level. When operated (i.e. when the supply line is pressurized), the sprinkler is automatically raised above ground level for irrigation; on pressure shut-off, the sprinkler returns to its below ground level position.

2.151 Possible Regulation Range

All the possible regulated pressures or regulation ranges that can be attained with the pressure regulator by the addition, reduction or replacement of regulation components (springs, disks, etc).

2.152 Power Conductor

A conductor that carries current to provide electric power from the machine isolator to the drive motor.

2.153 Preliminary Filter Element

A body having larger aperture openings than the filter element, designed to protect the automatic cleaning mechanism.

2.154 Pressure

Internal pressure measured in kilopascals at the inlet end of the hose or as otherwise designated.

2.155 Pressure Regulator

A valve in which the water passage widens or narrows automatically to maintain a relatively constant pressure at the outlet of the pressure regulator at varying pressure or flow rates at the pressure regulating inlet.

2.156 Pressure Loss

The difference in pressure between two specified points in a system, or in part of a system, due to water flow through it.

2.157 Protective Mechanism

A mechanism that prevents repeated flushings of a filter caused either by mechanical failure in the flushing control mechanism or by the inability of the filter to reach a pressure differential between inlet and outlet pressures that is less than the preset flushing pressure differential.

2.158 Range of Effective Working Pressure

The pressure range between the minimum working pressure, P_1, and the maximum effective working pressure, P_2, recommended by the manufacturer as the pressure range in which the sprinklers operate effectively.

2.159 Range of Recommended Flow Rates

The range of flow rates declared by the manufacturer for proper operation of the irrigation system component (valve, filter, etc).

2.160 Range of Regulation

Range of water pressures at the inlet of the regulated emitter or emitting unit, in which each emitter or emitting unit of the emitting-pipe discharges water within the range of emission rates specified by the manufacturer.

2.161 Range of Emitter Working Pressures

Range of water pressures at the emitter or emitter inlet, between and including the minimum working pressure, P_{MIN}, and the maximum working pressure, P_{MAX}, recommended by the emitter manufacturer to ensure proper operation.

2.162 Range of Valve Working Pressure

Range of water pressure between the minimum and nominal working pressures.

2.163 Readily Accessible

Capable of being opened quickly for maintenance, repair, or inspection. May be fastened by latches or held by mechanical interlocks or similar apparatus. A cover firmly attached by two or more screws is not considered readily accessible.

2.164 Reference Cross Section

The reference cross section of a valve is calculated from the formula:

$$A_r = \frac{\pi}{4}\left(\frac{D_n}{1\,000}\right)^2$$

where

D_n = nominal diameter of the pressure regulator (mm), and

A_r = reference cross-section (m^2).

2.165 Reference Velocity (V_r)

The reference velocity of flow through the valve is calculated by dividing the actual flow rate through the valve by the reference cross-section of the valve.

2.166 Regulated Emitter Nominal Emission Rate

Emission rate, in litres per hour of the emitter or emitter unit operating in the range of regulation and a water temperature of 23°C, as specified by the manufacturer.

2.167 Regulated Pressure

The water pressure at the outlet of the pressure regulator.

2.168 Regulated Pressure at Zero Flow

The regulated water pressure when pressure is applied at the pressure regulator inlet and the pressure regulator outlet is closed.

2.169 Regulated (Pressure Compensating) Emitter

Emitter of relatively constant emission rate at varying water pressure at the emitter within the limits specified by the manufacturer.

2.170 Regulated (Pressure Compensating) Emitter-Pipe

Emitting pipe of relatively constant emission rate at varying water pressure at the emitting pipe inlet within the limits specified by the manufacturer.

2.171 Regulated Sprayer

A sprayer with a flow rate under conditions of fluctuating pressure within a specified pressure range at the sprayer inlet.

2.172 Regulation Assembly

The portion of the pressure regulator consisting mainly of working parts that narrow or widen the water passages in the pressure regulator to maintain a constant pressure.

2.173 Regulation Range of Pressure Regulator

The range of water pressure at the pressure regulator inlet (starting with initial regulation pressure) containing the regulated pressures within the accuracy range specified in the standard.

2.174 Regulation Range of Sprayer

Range of pressures at regulated sprayer inlet within which the sprayer is designed to operate and discharge the nominal rate of flow.

2.175 Relieve Nozzle

An aperture in the upper of the valve body (or in the valve cover plate) through which air is vented from the valve, or air enters into it. In general the relief nozzle serves also as the seat of the float seal (or float assembly).

2.176 Rotating Sprinkler

A device which by its rotating motion around its vertical axis distributes water over an area or part of an area.

2.177 Safe Maximum Pressure Drop

The maximum allowable difference between inlet and outlet pressures across the strainer when the filter element has become clogged to the extent of requiring cleaning or replacement.

2.178 Sealing Seat

A part of the relief nozzle (on the inside part of the valve body) or of the valve body to which the float (or part of the float assembly) adheres, when the relief valve is closed and which acts as a seal.

2.179 Screw-Down Stop and Check Valve

A check valve which incorporates an adustable stop to restrict the lift of the check mechanism.

2.180 Semi-automatic Irrigation System

Irrigation system that includes a control system capable of shutting off the irrigation system automatically after a preset quantity of water has passed through the valve. The control system must be manually reset to deliver the required dose of water for any new irrigation cycle.

2.181 Sequential Activation

Activation of several valves one after the other, so that each valve begins operation after the preceding valve in the series has delivered its preset quantity of water for irrigation.

2.182 Serial Volumetric Valve

A volumetric valve intended to be opened by hydraulic command when preset to the open position, and which on closing, after delivering the preset quantity of water, transmits a hydraulic command to the next volumetric valve in the series so as to bring it into operation.

2.183 Single-Season Emitting Pipe

Emitting pipe intended for use during one season only, and not intended for removal and reinstallation.

2.184 Single Range Pressure Regulator

A pressure regulator with a fixed pressure setting which cannot be varied.

2.185 Size of the Aperture

The dimension of the aperture in the filter element, such as the diameter of a round opening or the side of a square opening.

2.186 Snaking

Deviation of the hose from the original straight-line position, as laid down by the machine, caused by elongation.

2.187 Spray Angle

Angle of the water spray above a horizontal plane, as discharged from the sprayer nozzle at nominal working pressure.

2.188 Spray Coverage Pattern

Area wetted by the sprayer and described by an angular part circle pattern, for example full circle, 360° pattern; half-circle; 180° pattern, two circular sectors, such as the sector between 0° and 90° and the sector between 180° and 270°.

2.189 Sprayer Nozzle

That part of the sprayer through which the water spray is discharged.

2.190 Sprinkler Nozzle

Aperture or adjutage of the sprinkler through which the water is discharged. The sprinkler may contain one or several interchangeable cylindrical or other shaped nozzles.

2.191 Sprinkler Package

A collection of devices fitted to the outlets of either centre pivot or lateral move machines. The devices may consist of sprayers or sprinklers and can include piping, pressure or flow control devices, and supporting plumbing designed for a specific machine and set of operating parameters.

2.192 Sprinkler Spacing

The distance between sprinklers along the irrigation laterals and the distance between the laterals.

2.193 Steady Flow

Flow in which the flow rate through a measuring section does not vary with time.

2.194 Stem or Spindle

That component by which control of the closing component is effected.

2.195 Stop and Check Valve

A check valve which incorporates an adjustable stop to restrict the lift of the check valve.

2.196 Strainer Housing

That part of the strainer that contains all the strainer components, except for the control equipment.

2.197 Strainer Housing Cover

A removable cover permitting assembly, disassembly, and cleaning of the strainer elements.

2.198 Strainer Length

Overall length between the extremities of the strainer connecting threads, the face-to-face distance between the connecting flanges, or the distance between centre lines of the parallel inlet and outlet ports, either threaded or flanged.

2.199 Strainer-Type Filter (Strainer)

An appliance containing one or more filtering elements, and used for separating suspended solids from the water flowing through the appliance by collecting them on the face of the filter element.

2.200 Swing-Type Check Valve

A check valve in which check mechanism incorporates a swinging disk or two half-disks which swing on a hinge.

2.201 Test Pressure of Irrigation Machine

The pressure of the centre pivot or lateral move machines as measured at the nearest (first available) outlet downstream of the elbow or tee, at the top of the inlet structure.

2.202 Trajectory Height

The maximum height of the trajectory above the sprinkler nozzle, when operating at the nominal test pressure.

2.203 Two-Side Hydraulic Activation

Activating mechanism capable of using water pressure to apply force in two directions, either for opening or for closing.

2.204 Unit Emitting Pipe

Length of emitting-pipe containing one emitting unit.

2.205 Unions

A threaded coupling which is used to connect two pipes and which does not require rotation of the pipes during installation and dismantling.

2.206 Unregulated Emitter Nominal Emission Rate

Emission rate, in litres per hour, of the emitter or emitter unit at nominal test pressure and at a water temperature of 23°C, as specified by the manufacturer.

2.207 Unregulated (non-Compensating) Emitter

Emitter of varying emission rate at varying water pressures at emitter inlet.

2.208 Valve Body

The main part of the valve through which the fluid flows and which houses the working parts of the valve and allows connection to the pipe through which the flow of the fluid occurs.

2.209 Valve Body of Air Release Valve

That part of the air release valve through the cavity of which the float moves and whose upper part hold the relief nozzle.

2.210 Valve Flow Coefficient (kv)

The cubic metres of water per hour that will flow through a fully open valve with a one bar pressure differential across the valve.

2.211 Valve Pressure Loss

The pressure loss in the tested valve alone.

2.212 Valve Pressure Loss Coefficient (k)

A coefficient used in non-dimensional presentation of valve loss. It is defined by the expression:

$$k = \frac{2p_v}{v_r^2}$$

2.213 Valve Seat

A smooth seat around the flow aperture in the body dividing wall with which the disk face or disk facing ring make contact when the valve is closed.

2.214 Vertical Position Check Valve

A check valve for installation in a vertical position, in which the axes of the inlet or outlet are in line with each other.

2.215 Volume of Flushing Water

The volume of water flushed from the filter during one flushing operation at an inlet pressure of 350 kPa.

2.216 Volumetric Valve

A valve capable of delivering automatically preset quantities of water for irrigation purposes at various rates of flow by measuring volumetrically the quantities of water flowing through the valve.

2.217 Water Application Rate

Mean depth of water applied to a unit of area irrigated in a unit of time, for example, millimetres per hour.

2.218 Water Dose

Measured quantity of water required to fill the needs of a given crop area in one irrigation cycle.

2.219 Water Outlet Height

The height of the water outlet from the sprayer above ground level.

2.220 Weatherproof (in an Electrical Component)

Constructed or protected so that exposure to the environment will not interfere with successful operation.

2.221 Wetted Radius

The distance measured from the sprayer or sprinkler center line to the most remote point at which the application rate of the individual nozzle declines to approximetely 0·25 mm/h. The wetted radius should be based on tests that were conducted when there was no wind. For the purpose of this test, the wetted radius of the sprayer or sprinkler can be estimated from manufacturer's catalogue data or by observation of the machine operating in the field.

2.222 Wind Velocity

The average wind velocity in the test field during the test of distribution uniformity by the sprinkler.

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